

1 finally an exhaust cycle; four sets of ports (14 & 15) one set for each chamber, ports (14)
2 for intake of combustible fluids and lubricating oil only and ports (15) for exhaust only,
3 are conveniently located in the cylindrical casing (1) and, or at the end plates (10 & 11),
4 depending upon the desired performance of the engine, having, (optional), generally
5 known in the art, external valving means with an appropriate cam shaft; four ignition
6 means (16, 17, 18 & 19), one for each chamber, ignite the compressed fuel mixture at
7 maximum compression, firing sequentially into the appropriate chamber room at the end
8 of the combustion stroke.

9 2. An internal-combustion engine according to claim 1, having means for
10 imparting continuous rotation from the alternating "power output" shaft (6) to the main
11 shaft (22) comprising a crank (19) secured to said shaft, a connecting rod (20) swivably
12 mounted to said crank and to the uni-directionally rotating main shaft (22) through a slot
13 on the flywheel (21), said rod pivots back and forth across the vertical line passing
14 through the axis of the "power output" shaft (6) and the axis of the main shaft (22); said
15 rod being extendable and adjustable in length at point (27); the lower part of said rod
16 being rotatably and movably attached to the slot formed on the flywheel (21) and being
17 fixed together with a fastening member via that slot to said flywheel in a predetermined
18 position thus adjusting the length of the stroke of the swinging piston assembly for an
19 optimum performance; said fastening member being comprised of a bolt and a nut
20 coupled to the lower end of the rod and to the slot on the flywheel.

21 3. An internal combustion engine according to claim 1, wherein as an alternative
22 embodiment the rigid longitudinal vanes (7 & 8) are replaced by articulating vanes (28,
23 29, 30 & 31); the vane segments (29 & 30) in operation move as previously described;
24 the articulated vane segments (28 & 31) form a different shaping of the chambers a, b, c
25 and d; said vanes are suitably mounted for slidable rotation within slide-bearing means
26 (32 & 33); said vanes nutate about the joints (34 & 35) while simultaneously sliding

1 within the bearings (32 & 33); said bearings are rotatable within the casing while
2 allowing vane segments (28 & 31) to slide therethrough.

3 4. An internal combustion engine according to claim 1, wherein the intake ports
4 (14) are replaced with plurality of injection means, preferably located close to the
5 spark plugs.
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